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## CCAF launch pad for astrophysicist's NASA career

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As a young teen gazing silently at the stars from a vantage point on Canada's Georgian Bay, 250 miles from his home in St. Clair, Mich., Richard Barry wondered a great deal about space and the possibilities of life on other planets. Having spent his formative years on a small farm, he never dreamed his future would include a search for planets trillions of miles from home on Earth, and he never realized a stint in the Air Force and a Community College of the Air Force degree would launch his career as an astrophysicist and astronomer with NASA.

The young Barry was not the academic genius one imagines in the astrophysics or astronomy. His high school biology teacher, Gerald Van Deusen, happened to be the father of his best friend Jim, so Barry often travelled in the late 1970's with the Van Deusen family to their cabin in Tobermory, Ontario. Located on the northern tip of the Bruce Peninsula, where Lake Huron greets the Georgian Bay, Tobermory was mostly untouched by civilization and the ambient light that accompanies man's presence. In the forests of Tobermory, surrounded by thousand-year-old white cedars, the oldest trees in North America, Barry and the Van Deusens would look up at the night sky and appreciate those heavenly bodies.

Today, Dr. Barry holds advanced degrees in electrical engineering, physics and astronomy. He has worked for NASA since 1989. He has worked on the space shuttle as a power system engineer, and on the Hubble telescope. Awarded a doctorate in physics and astronomy from Johns Hopkins University in 2008, Dr. Barry now works as a scientist at the Goddard Space Center in Greenbelt, Md.

"I had no idea that he would ever be interested in doing what he does. He showed me his dissertation and I can't pretend to understand it, but I am thoroughly impressed," said Gerald Van Deusen, now retired and living in Marysville, Mich., after a 30-year teaching career.

Dr. Barry's life would have turned out much differently had it not been for a robot, some good advice from his brother Jim Barry, an Air Force F-15 Eagle pilot, and a CCAF degree.

Graduation from high school did not include a Goldwater or Davidson scholarship. In fact, he failed math. Post-graduate work at that time included a night job at a salt factory. While most people were sleeping, Barry worked in the midst of the other salt factory lifers, covered in salt dust, enduring back pain and talking to guys with names like 'One-eyed Lou' Hicks and 'Double-D' Dwight Dundas.

He hoped the salt factory would be place where he could save enough money for school, but a robot stole his job and undermined his post-secondary educational financing plan. A young, dislocated worker, Barry enlisted in the Air Force in 1981.

The F-16 Falcon was the newest member of the Air Force's fighter fleet, just a year into operational service, and contained state-of-art technology. Eager to learn about the most modern aircraft, Barry elected the avionics career field and was sent to Lowery AFB, Colo., and later Hill AFB, Utah, for training. It was a decision that would have lasting career implications.

"It seemed like a natural thing to do. My brother was an F-15 driver; my dad drove BUFFs [big ugly fat fellows, B-52s] in Vietnam, so the Air Force seemed like a good option, and I wanted the most challenging school they offered."

While stationed at Kadena AB, Japan, on the island of Okinawa, Barry was responsible for troubleshooting and repairing fly-by-wire, fire control, navigation and communications systems, as

well as ATLAS computer language programming.

In Okinawa, he took up scuba diving, immersed himself in the Japanese culture, which fascinated him, and decided he needed to start on a direction. "My brother Jim said to me, 'It seems like what you need to do is hit your math. Take two giant steps backward, and when you feel comfortable, move forward,' and I started taking algebra at the base education center through the University of Maryland," said Dr. Barry. "I never missed an 'A' after that."

As he neared the completion of his CCAF degree, an Associate of Science in Avionics Engineering Technology – a degree which he continues to mention proudly among his educational achievements – he began to believe he could be an astronaut.

"I started saying to myself, 'You know I am confident in math and I scuba; so I'm comfortable in a weightless environment and I have some Air Force credibility; maybe I can do this; maybe I can be a flight engineer on a space shuttle.'" Dr. Barry said. "I never would have had the confidence to even think that way if it weren't for the CCAF degree. Getting that degree and the coursework that led to it taught me that I could take the bull by the horn and drive to my goals."

After completing his Air Force enlistment in 1986, Barry went on to attain engineering and physics degrees, but he didn't forget about the value of his Air Force experience.

"I wrote a letter to Kennedy Space Center, informing them that I was applying for a position and that I had experience as an avionics technician on the F-16, and they hired me because some of the same technology used in the F-16 is used in the space shuttle." Dr. Barry said. "There are no shortages of engineers who want to work at NASA, but they hired me because of my F-16 experience."

A scientist at the Goddard Space Center in Greenbelt, Md., Dr. Barry's current work includes the NASA EPOXI mission to study exoplanets, also called extrasolar planets. Exoplanets are planets that reside outside the earth's solar system. The first confirmed discovery of an exoplanet in 1995 resulted in a gold rush of exoplanet discoveries. Since that discovery of the exoplanet 51 Pegasi b in the Pegasus constellation, more than 400 exoplanets have been discovered.

"We are in a golden age of astronomy. In the next ten years we will probably discover thousands more planets out there," said Dr. Barry. "This is just the beginning. In the next 10 years we will have developed the technologies to discover more planets, and perhaps within my lifetime, we will find good, solid evidence of life on other planets."

Dr. Barry is also developing technologies for the Terrestrial Planet Finder. This mission's purpose includes locating and studying terrestrial planets in 'habitable zones' or zones where distance from the star is neither too hot nor too cold to support life. Such a planet, which possesses liquid water, could potentially support life. Developing and using equipment with names like "Ditherless Quadrature Phase Detector" – a name he came up with – to locate planets veiled by stars, tens of trillions of miles from earth, Dr. Barry studies planets that scientists couldn't prove existed 15 years earlier. Another of his projects is the Kepler mission, a specialized telescope that scans the skies to locate terrestrial or earth-sized planets and study their orbits in habitable zones.

Though a health condition prevented him from becoming an astronaut, he continues to appreciate the benefits he received from his experience in attaining a CCAF degree and serving in the Air Force. Do not suggest, however, that his success was a mere case of the stars aligning in his favor.

"A buddy once described me as tearing into my goals like a half-starved Chihuahua on a pork chop," he said. "I have always asserted that if anything will yield to hard work and determination, it will yield to me," Dr. Barry said.

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